

REMARKS

STATUS OF CLAIMS

Claims 1-31 were previously pending.

Claims 1, 18, and 22 have been amended and no claims have been added or cancelled. Therefore, claims 1-31 are pending and are submitted for reconsideration.

STATUS OF OFFICE ACTION DATED AUGUST 7, 2006

It should be noted that the paragraph 8 of the office action dated August 7, 2006, appears to erroneously note that the office action is final. The Office Action Summary as well as the data accessed through PAIR indicates that it is a non-final office action. Accordingly, applicants request confirmation of the status of the office action.

REJECTION UNDER 35 U.S.C. §112

In the office action, claims 1-31 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description of the invention. Applicants respectfully traverse this rejection for the following reasons. The specification specifically states that “[a] cluster structure over the discrete attribute space is first performed using methods similar to methods for identifying itemsets in data.” See page 8, lines 2-3 of the specification. Methods similar to methods for identifying frequent itemsets are well known to those of skill in both the database and data mining arts. Moreover, the specification actually describes an exemplary method on pages 8-10 of the specification. Accordingly, in view of the verbatim use of identifying frequent itemsets together with the disclosure of a specific example, there is no doubt that this feature is described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had *possession of the claimed invention*.

In fact, in paragraph 4, the examiner takes “official notice” of methods that are similar to methods of identifying frequent itemsets in data clustering of discrete data and applicants do not challenge this assertion by the examiner. Accordingly, applicants

Type of Response: Amendment
Application Number: 09/886,771
Attorney Docket Number: 163193.01
Filing Date: June 21, 2001

submit that the pending claims meet the requirements of 35 U.S.C. 112, first paragraph, and the applied rejection should be withdrawn.

PRIOR ART REJECTIONS

In the office action, claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Pub. No. WO 99/62007 (hereafter “Fayyad”) in view of U.S. Patent No. 6,430,344 (hereafter “Kothuri”). Applicants respectfully traverse this rejection for at least the following reasons.

Independent claim 1 recites, *inter alia*, performing clustering of mixed attribute data records in two phases including a first phase which clusters the data records over a discrete attribute space, and a second phase that then uses a method of clustering continuous attributes using a method for clustering continuous attribute data to produce and intermediate set of data clusters that are then merged together to form a clustering model. The first phase precedes the second phase. These recited features are not disclosed by the applied prior art.

Specifically, as acknowledged in the office action, Fayyad does not disclose “clustering in two phases, over a discrete attribute and using a method of clustering continuous attribute data.” See page 5, lines 1-2 of the office action.

To cure this deficiency, the office action relies on Kothuri. However, nowhere does Kothuri teach the claimed two phases including a first phase which clusters the data records over a discrete attribute space, and a second phase that then uses a method of clustering continuous attributes using a method for clustering continuous attribute data to produce and intermediate set of data clusters, where the first phase precedes the second phase since it provides an input that is used in the second phase. To disclose this feature, the office action cites to col. 12, lines 40-54 and col. 14, lines 30-65 of Kothuri which relates generally to buffering nodes of a hierarchical index during operations on multi-dimensional data.

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Application Number: 09/886,771
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Specifically, col. 12, lines 40-54 of Kothuri relates to how a subset of divided data may “fit into a node of an R-tree having a fanout value of three; therefore no further subdivision is required.” See col. 12, lines 40-43. The remaining portion relates to how the R-tree index is constructed once the data has been clustered and this has very little relevance to the specific clustering sequence recited in pending independent claims 1.

Likewise, col. 14, lines 30-65 relates to selecting one of the attributes having discrete values or continuous values based on “the attribute that has the most query retrieval units...as the dimension in which to divide the data items.” This teaching of selecting *either* the discrete data attributes or the continuous data attributes is of course very different from the claimed features recited in claim 1 and, in fact, teaches away from the recited features which requires a specific sequence of the two phases in all instances.

Accordingly, the features recited in claim 1 are not disclosed or suggested by either Fayyad or Kothuri and, therefore, necessarily not disclosed by their reasonable combination. Accordingly, the office action fails to make a *prima facie* case of obviousness with respect to independent claim 1.

In the context of obviousness, it should also be noted that the prior art should disclose the specific features recited in a claim and that *silence* in the prior art references does not provide a sufficient basis for a rejection under section 103. In the context of obviousness, the Patent Office (PTO) has the burden of proving each of the claimed features is shown by the prior art. An allegation that claimed subject matter is “obvious” requires a positive, concrete teaching in the prior art, such as would lead a person skilled in the art to choose the claimed combination from among many that might be comprehended by broad prior art teachings. The PTO’s review court has made it very clear that silence in a reference is hardly a substitute for clear and concrete evidence from which a conclusion of obviousness might justifiably flow. See, e.g., *Application of Burt*, 356 F.2d 115, 121 (CCPA 1966).

The independent claims 18 and 22 are also patentable for reasons that are similar to that discussed above with respect to claim 1. Independent claim 8 recites the sequence

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of clustering by reciting that the first set of configurations (identified in a first discrete clustering) is used in the second continuous clustering based on the continuous data attributes of records contained within that first set of configurations to produce a clustering model. These recited features are also patentable over the applied prior art for reasons that are similar to that discussed earlier herein with respect to claim 1.

DEPENDENT CLAIMS

The dependent claims are deemed to be patentable at least based on their dependence from allowable independent claims. In addition, they recite patentable subject matter when considered as a whole.

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CONCLUSION

Accordingly, applicant submits that the application is now in condition for allowance and an indication of the same is respectfully requested. If the Examiner believes that the application is not in condition for allowance, the Examiner is respectfully requested to call the Applicants' representative at the telephone number listed below.

If this Amendment is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this Response, including an extension fee that is not covered by an enclosed check please charge any deficiency to Deposit Account No. 50-0463.

Respectfully submitted,
Microsoft Corporation

Date: November 7, 2006

By:



Aaron C. Chatterjee, Reg. No. 41,398
Attorney for Applicants
Direct telephone (703) 647-6572
Microsoft Corporation
One Microsoft Way
Redmond WA 98052-6399

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

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Kate Marochkina

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Type of Response: Amendment
Application Number: 09/886,771
Attorney Docket Number: 163193.01
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